Agency for Healthcare Research and Quality
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NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and postpartum.

Bibliographic Source(s)

Stagnaro-Green A, Abalovich M, Alexander E, Azizi F, Mestman J, Negro R, Nixon A, Pearce EN, Soldin OP, Sullivan S, Wiersinga W, American Thyroid Association Taskforce on Thyroid Disease During Pregnancy and Postpartum. Guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and postpartum. Thyroid. 2011 Oct;21(10):1081-125. [319 references] PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Definitions for the strength of recommendations (A-D,I) are presented at the end of the "Major Recommendations" field. The strength of each recommendation was graded according to the United States Preventive Services Task Force (USPSTF).

Thyroid Function Tests in Pregnancy

R1. Trimester-specific reference ranges for thyrotropin (TSH), as defined in populations with optimal iodine intake, should be applied. Level B-USPSTF

R2. If trimester-specific reference ranges for TSH are not available in the laboratory, the following reference ranges are recommended: first trimester, 0.1–2.5 mIU/L; second trimester, 0.2–3.0 mIU/L; third trimester, 0.3–3.0 mIU/L. Level I-USPSTF

R3. The optimal method to assess serum free thyroxine (FT_4) during pregnancy is measurement of thyroxine (T_4) in the dialysate or ultrafiltrate of serum samples employing on-line extraction/liquid chromatography/tandem mass spectrometry (LC/MS/MS). Level A-USPSTF

R4. If FT_4 measurement by LC/MS/MS is not available, clinicians should use whichever measure or estimate of FT_4 is available in their laboratory, being aware of the limitations of each method. Serum TSH is a more accurate indication of thyroid status in pregnancy than any of these alternative methods. Level A-USPSTF

R5. In view of the wide variation in the results of FT_4 assays, method-specific and trimester-specific reference ranges of serum FT_4 are required. Level B-USPSTF

Hypothyroidism in Pregnancy

R6. Overt hypothyroidism (OH) should be treated in pregnancy. This includes women with a TSH concentration above the trimester-specific reference interval with a decreased FT_4, and all women with a TSH concentration above 10.0 mIU/L irrespective of the level of FT_4. Level A-USPSTF

R7. Isolated hypothyroxinemia should not be treated in pregnancy. Level C-USPSTF

R8. Subclinical hypothyroidism (SCH) has been associated with adverse maternal and fetal outcomes. However, due to the lack of randomized controlled trials there is insufficient evidence to recommend for or against universal levothyroxine (LT4) treatment in thyroglobulin antibody-negative (TAb-) pregnant women with SCH. Level I-USPSTF

R9. Women who are positive for thyroid peroxidase antibody (TPOAb) and have SCH should be treated with LT_4. Level B-USPSTF *(Dissent from one committee member: There is no consistent prospective evidence demonstrating that women who are positive for thyroid peroxidase antibody (TPOAb+), but who have SCH only, achieve maternal or perinatal benefit from LT_4 treatment. Correspondingly, there is no indication to treat women who are TPOAb+ and have SCH with LT_4.)*

R10. The recommended treatment of maternal hypothyroidism is with administration of oral LT_4. It is strongly recommended not to use other thyroid preparations such as T_3 or desiccated thyroid. Level A-USPSTF

R11. The goal of LT_4 treatment is to normalize maternal serum TSH values within the trimester-specific pregnancy reference range (first trimester, 0.1–2.5 mIU/L, second trimester, 0.2–3.0 mIU/L, third trimester, 0.3–3.0 mIU/L). Level A-USPSTF

R12. Women with SCH in pregnancy who are not initially treated should be monitored for progression to OH with a serum TSH and FT_4 approximately every 4 weeks until 16—20 weeks gestation and at least once between 26 and 32 weeks gestation. This approach has not been prospectively studied. Level I-USPSTF

R13. Treated hypothyroid patients (receiving LT_4), who are newly pregnant should independently increase their dose of LT_4 by approximately 25%–30% upon a missed menstrual cycle or positive home pregnancy test and notify their caregiver promptly. One means of accomplishing this adjustment is to increase LT_4 from once daily dosing to a total of nine doses per week (29% increase). Level B-USPSTF

R14. There exists great inter-individual variability regarding the increased amount of T_4 (or LT_4) necessary to maintain a normal TSH throughout pregnancy, with some women requiring only 10%–20% increased dosing, while others may require as much as an 80% increase. The etiology of maternal hypothyroidism, as well as the preconception level of TSH, may provide insight into the magnitude of necessary LT_4 increase. Clinicians should seek this information upon assessment of the patient after pregnancy is confirmed. Level A-USPSTF

R15. Treated hypothyroid patients (receiving LT_4) who are planning pregnancy should have their dose adjusted by their provider in order to optimize serum TSH values to <2.5 mIU/L preconception. Lower preconception TSH values (within the nonpregnant reference range) reduce the risk of TSH elevation during the first trimester. Level B-USPSTF

R16. In pregnant patients with treated hypothyroidism, maternal serum TSH should be monitored approximately every 4 weeks during the first half of pregnancy because further LT_4 dose adjustments are often required. Level B-USPSTF

R17. In pregnant patients with treated hypothyroidism, maternal TSH should be checked at least once between 26 and 32 weeks gestation. Level I-USPSTF

R18. Following delivery, LT_4 should be reduced to the patient's preconception dose. Additional TSH testing should be performed at approximately 6 weeks postpartum. Level B-USPSTF

R19. In the care of women with adequately treated Hashimoto's thyroiditis, no other maternal or fetal thyroid testing is recommended beyond measurement of maternal thyroid function (such as serial fetal ultrasounds, antenatal testing, and/or umbilical blood sampling) unless for other pregnancy circumstances. Level A-USPSTF

R20. Euthyroid women (not receiving LT_4) who are TAb+ require monitoring for hypothyroidism during pregnancy. Serum TSH should be evaluated every 4 weeks during the first half of pregnancy and at least once between 26 and 32 weeks gestation. Level B-USPSTF

R21. A single randomized control trial (RCT) has demonstrated a reduction in postpartum thyroiditis from selenium therapy. No subsequent trials

have confirmed or refuted these findings. At present, selenium supplementation is not recommended for TPOAb+ women during pregnancy. Level C-USPSTF

Thyrotoxicosis in Pregnancy

R22. In the presence of a suppressed serum TSH in the first trimester (TSH <0.1 mIU/L), a history and physical examination are indicated. FT_4 measurements should be obtained in all patients. Measurement of serum total T_3 (TT_3) and thyrotropin receptor antibodies (TRAb) may be helpful in establishing a diagnosis of hyperthyroidism. Level B-USPSTF

R23. There is not enough evidence to recommend for or against the use of thyroid ultrasound in differentiating the cause of hyperthyroidism in pregnancy. Level I-USPSTF

R24. Radioactive iodine (RAI) scanning or radioiodine uptake determination should not be performed in pregnancy. Level D-USPSTF

R25. The appropriate management of women with gestational hyperthyroidism and hyperemesis gravidarum includes supportive therapy, management of dehydration, and hospitalization if needed. Level A-USPSTF

R26. Antithyroid drugs (ATDs) are not recommended for the management of gestational hyperthyroidism. Level D-USPSTF

R27. Thyrotoxic women should be rendered euthyroid before attempting pregnancy. Level A-USPSTF

R28. Propylthiouracil (PTU) is preferred for the treatment of hyperthyroidism in the first trimester. Patients on methimazole (MMI) should be switched to PTU if pregnancy is confirmed in the first trimester. Following the first trimester, consideration should be given to switching to MMI. Level I-USPSTF

R29. A combination regimen of LT_4 and an ATD should not be used in pregnancy, except in the rare situation of fetal hyperthyroidism. Level D-USPSTF

R30. In women being treated with ATDs in pregnancy, FT_4 and TSH should be monitored approximately every 2–6 weeks. The primary goal is a serum FT_4 at or moderately above the normal reference range. Level B-USPSTF

R31. Thyroidectomy in pregnancy is rarely indicated. If required, the optimal time for thyroidectomy is in the second trimester. Level A-USPSTF

R32. If the patient has a past or present history of Graves' disease, a maternal serum determination of receptor antibodies (TRAb) should be obtained at 20–24 weeks gestation. Level B-USPSTF

R33. Fetal surveillance with serial ultrasounds should be performed in women who have uncontrolled hyperthyroidism and/or women with high TRAb levels (greater than three times the upper limit of normal). A consultation with an experienced obstetrician or maternal–fetal medicine specialist is optimal. Such monitoring may include ultrasound for heart rate, growth, amniotic fluid volume and fetal goiter. Level I-USPSTF

R34. Cordocentesis should be used in extremely rare circumstances and performed in an appropriate setting. It may occasionally be of use when fetal goiter is detected in women taking ATDs to help determine whether the fetus is hyperthyroid or hypothyroid. Level I-USPSTF

R35. MMI in doses up to 20–30mg/d is safe for lactating mothers and their infants. PTU at doses up to 300 mg/d is a second-line agent due to concerns about severe hepatotoxicity. ATDs should be administered following a feeding and in divided doses. Level A-USPSTF

Clinical Guidelines for Iodine Nutrition

R36. All pregnant and lactating women should ingest a minimum of 250 μg iodine daily. Level A-USPSTF

R37. To achieve a total of 250 μg of iodine ingestion daily in North America all women who are planning to be pregnant or are pregnant or breastfeeding should supplement their diet with a daily oral supplement that contains 150 μg of iodine. This is optimally delivered in the form of potassium iodide because kelp and other forms of seaweed do not provide a consistent delivery of daily iodide. Level B-USPSTF

R38. In areas of the world outside of North America, strategies for ensuring adequate iodine intake during preconception, pregnancy, and lactation should vary according to regional dietary patterns and availability of iodized salt. Level A-USPSTF

R39. Pharmacologic doses of iodine exposure during pregnancy should be avoided, except in preparation for thyroid surgery for Graves' disease. Clinicians should carefully weigh the risks and benefits when ordering medications or diagnostic tests that will result in high iodine exposure. Level C-USPSTF

R40. Sustained iodine intake from diet and dietary supplements exceeding 500–1100 μg daily should be avoided due to concerns about the potential for fetal hypothyroidism. Level C-USPSTF

Spontaneous Pregnancy Loss, Preterm Delivery, and Thyroid Antibodies

R41. There is insufficient evidence to recommend for or against screening all women for antithyroid antibodies in the first trimester of pregnancy. Level I-USPSTF

R42. There is insufficient evidence to recommend for or against screening for thyroid antibodies, or treating in the first trimester of pregnancy with LT_4 or intravenous immunoglobulin (IVIG), in euthyroid women with sporadic or recurrent abortion, or in women undergoing in vitro fertilization (IVF). Level I-USPSTF

R43. There is insufficient evidence to recommend for or against LT_4 therapy in TAb+ euthyroid women during pregnancy. Level I-USPSTF

R44. There is insufficient evidence to recommend for or against LT_4 therapy in euthyroid TAb+ women undergoing assisted reproduction technologies. Level I-USPSTF

R45. There is insufficient evidence to recommend for or against screening for anti-thyroid antibodies in the first trimester of pregnancy, or treating TAb+ euthyroid women with LT_4, to prevent preterm delivery. Level I-USPSTF

Thyroid Nodules and Thyroid Cancer

R46. The optimal diagnostic strategy for thyroid nodules detected during pregnancy is based on risk stratification. All women should have the following: a complete history and clinical examination, serum TSH testing, and ultrasound of the neck. Level A-USPSTF

R47. The utility of measuring calcitonin in pregnant women with thyroid nodules is unknown. Level I-USPSTF

R48. Thyroid or lymph node fine-needle aspiration (FNA) confers no additional risks to a pregnancy. Level A-USPSTF

R49. Thyroid nodules discovered during pregnancy that have suspicious ultrasound features, as delineated by the 2009 American Thyroid Association (ATA) guidelines, should be considered for FNA. In instances in which nodules are likely benign, FNA may be deferred until after delivery based on patients' preference. Level I-USPSTF

R50. The use of radioiodine imaging and/or uptake determination or therapeutic dosing is contraindicated during pregnancy. Inadvertent use of radioiodine prior to 12 weeks of gestation does not appear to damage the fetal thyroid. Level A-USPSTF

R51. Because the prognosis of women with well-differentiated thyroid cancer identified but not treated during pregnancy is similar to that of nonpregnant patients, surgery may be generally deferred until postpartum. Level B-USPSTF

R52. The impact of pregnancy on women with medullary carcinoma is unknown. Surgery is recommended during pregnancy in the presence of a large primary tumor or extensive lymph node metastases. Level I-USPSTF

R53. Surgery for thyroid carcinoma during the second trimester of pregnancy has not been demonstrated to be associated with increased maternal or fetal risk. Level B-USPSTF

R54. Pregnant women with thyroid nodules that are read as benign on FNA cytology do not require surgery during pregnancy except in cases of rapid nodule growth and/or if severe compressive symptoms develop. Postpartum, nodules should be managed according to the 2009 ATA guidelines. Level B-USPSTF

R55. When a decision has been made to defer surgery for well-differentiated thyroid carcinoma until after delivery, neck ultrasounds should be performed during each trimester to assess for rapid tumor growth, which may indicate the need for surgery. Level I-USPSTF

R56. Surgery in women with well-differentiated thyroid carcinoma may be deferred until postpartum without adversely affecting the patient's prognosis. However, if substantial growth of the well-differentiated thyroid carcinoma occurs or the emergence of lymph node metastases prior to midgestation occurs, then surgery is recommended. Level B-USPSTF

R57. Thyroid hormone therapy may be considered in pregnant women who have deferred surgery for well-differentiated thyroid carcinoma until postpartum. The goal of LT_4 therapy is a serum TSH level of 0.1–1.5 mIU/L. Level I-USPSTF

R58. Pregnant patients with an FNA sample that is suspicious for thyroid cancer do not require surgery while pregnant except in cases of rapid nodular growth and/or the appearance of lymph node metastases. Thyroid hormone therapy is not recommended. Level I-USPSTF

R59. The preconception TSH goal in women with differentiated thyroid cancer (DTC), which is determined by risk stratification, should be maintained during pregnancy. TSH should be monitored approximately every 4 weeks until 16–20 weeks of gestation and once between 26 and 32 weeks of gestation. Level B-USPSTF

R60. There is no evidence that previous exposure to radioiodine affects the outcomes of subsequent pregnancies and offspring. Pregnancy should be deferred for 6 months following RAI treatment. LT_4 dosing should be stabilized following RAI treatment before pregnancy is attempted. Level B-USPSTF

R61. Ultrasound and thyroglobulin (Tg) monitoring during pregnancy in patients with a history of previously treated DTC is not required for low-risk patients with no Tg or structural evidence of disease prior to pregnancy. Level B-USPSTF

R62. Ultrasound monitoring should be performed each trimester during pregnancy in patients with previously treated DTC and who have high levels of Tg or evidence of persistent structural disease prior to pregnancy. Level B-USPSTF

Postpartum Thyroiditis

R63. Women with postpartum depression should have TSH, FT_4, and TPOAb tests performed. Level B-USPSTF

R64. During the thyrotoxic phase of postpartum thyroiditis (PPT), symptomatic women may be treated with beta blockers. Propranolol at the lowest possible dose to alleviate symptoms is the treatment of choice. Therapy is typically required for a few months. Level B-USPSTF

R65. ATDs are not recommended for the treatment of the thyrotoxic phase of PPT. Level D-USPSTF

R66. Following the resolution of the thyrotoxic phase of PPT, TSH should be tested every 2 months (or if symptoms are present) until 1 year postpartum to screen for the hypothyroid phase. Level B-USPSTF

R67. Women who are symptomatic with hypothyroidism in PPT should either have their TSH level retested in 4–8 weeks or be started on LT_4 (if symptoms are severe, if conception is being attempted, or if the patient desires therapy). Women who are asymptomatic with hypothyroidism in PPT should have their TSH level retested in 4–8 weeks. Level B-USPSTF

R68. Women who are hypothyroid with PPT and attempting pregnancy should be treated with LT_4. Level A-USPSTF

R69. If LT_4 is initiated for PPT, future discontinuation of therapy should be attempted. Tapering of treatment can be begun 6–12 months after the initiation of treatment. Tapering of LT_4 should be avoided when a woman is actively attempting pregnancy, is breastfeeding, or is pregnant. Level C-USPSTF

R70. Women with a prior history of PPT should have an annual TSH test performed to evaluate for permanent hypothyroidism.

R71. Treatment of TAb+ euthyroid pregnant woman with either LT_4 or iodine to prevent PPT is ineffective and is not recommended. Level D-USPSTF

Thyroid Function Screening in Pregnancy

R72. There is insufficient evidence to recommend for or against universal TSH screening at the first trimester visit. Level I-USPSTF

R73. Because no studies to date have demonstrated a benefit to treatment of isolated maternal hypothyroxinemia, universal FT_4 screening of pregnant women is not recommended. Level D-USPSTF

R74. There is insufficient evidence to recommend for or against TSH testing preconception in women at high risk for hypothyroidism. Level I-USPSTF

R75. All pregnant women should be verbally screened at the initial prenatal visit for any history of thyroid dysfunction and/or use of thyroid hormone (LT_4) or anti-thyroid medications (MMI, carbimazole, or PTU). Level B-USPSTF

R76. Serum TSH values should be obtained early in pregnancy in the following women at high risk for overt hypothyroidism:

- History of thyroid dysfunction or prior thyroid surgery
- Age >30 years
- Symptoms of thyroid dysfunction or the presence of goiter

- TPOAb positivity
- Type 1 diabetes or other autoimmune disorders
- History of miscarriage or preterm delivery
- History of head or neck radiation
- Family history of thyroid dysfunction
- Morbid obesity (BMI ≥40 kg/m^2)
- Use of amiodarone or lithium, or recent administration of iodinated radiologic contrast
- Infertility
- Residing in an area of known moderate to severe iodine sufficiency

Level B-USPSTF

(Dissent from one committee member: There is no good evidence that improved maternal or perinatal outcomes will be obtained if the criteria for thyroid function screening were different for a pregnant than a nonpregnant population. Correspondingly, criteria for screening pregnant women should not differ from the nonpregnant population.)

Definitions:

Strength of Recommendation

The strength of each recommendation was graded according to the United States Preventive Services Task Force (USPSTF) guidelines outlined below.

Level A. The USPSTF strongly recommends that clinicians provide (the service) to eligible patients. *The USPSTF found good evidence that (the service) improves important health outcomes and concludes that benefits substantially outweigh harms*.

Level B. The USPSTF recommends that clinicians provide (this service) to eligible patients. T*he USPSTF found at least fair evidence that (the service) improves important health outcomes and concludes that benefits outweigh harms*.

Level C. The USPSTF makes no recommendation for or against routine provision of (the service). *The USPSTF found at least fair evidence that (the service) can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation*.

Level D. The USPSTF recommends against routinely providing (the service) to asymptomatic patients. *The USPSTF found at least fair evidence that (the service) is ineffective or that harms outweigh benefits*.

Level I. The USPSTF concludes that evidence is insufficient to recommend for or against routinely providing (the service). E*vidence that (the service) is effective is lacking, or poor quality, or conflicting, and the balance of benefits and harms cannot be determined.*

Clinical Algorithm(s)

Clinical algorithms are provided in the original guideline document for the following:

- Work-up and treatment of thyroid nodule detected during pregnancy
- Treatment and monitoring of postpartum thyroiditis
- First trimester screen hypothyroid algorithm

Scope

Disease/Condition(s)

Thyroid disease during pregnancy and postpartum including:

- Hypothyroidism
- Thyrotoxicosis
- Thyroid nodules and thyroid cancer

- Postpartum thyroiditis

Guideline Category

Diagnosis

Evaluation

Management

Screening

Treatment

Clinical Specialty

Endocrinology

Family Practice

Internal Medicine

Obstetrics and Gynecology

Radiology

Intended Users

Advanced Practice Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To provide clinical guidelines on the diagnosis and treatment of thyroid disease during pregnancy and postpartum

Target Population

Pregnant women and women who are postpartum with thyroid disease

Interventions and Practices Considered

Thyroid Function Tests during Pregnancy

1. Use of trimester-specific reference ranges for thyrotropin (TSH)
2. Preferential use of on-line extraction/liquid chromatography/tandem mass spectrometry to assess free thyroxine (FT_4)

Hypothyroidism in Pregnancy

1. Treatment of overt hypothyroidism (OH) in pregnancy with levothyroxine (LT_4)
2. Treatment of subclinical hypothyroidism (SCH) in women who are thyroid peroxidase antibody positive
3. Monitoring women with SCH who are thyroid peroxidase antibody negative in pregnancy and are not initially treated for progression to OH with a serum TSH and FT_4

4. Monitoring maternal serum TSH during the first half of pregnancy and adjusting LT_4 dose as required in women on LT_4 treatment prior to pregnancy
5. Monitoring euthyroid women (not receiving LT_4) who are thyroid antibody-positive (TAb+) for hypothyroidism during pregnancy
6. Selenium supplementation (considered but not recommended)

Thyrotoxicosis in Pregnancy

1. History and physical examination in the presence of a suppressed serum TSH in the first trimester
2. FT_4, serum total triiodothyronine (TT_3), and thyrotropin receptor antibody (TRAb) measurements
3. Radioactive iodine (RAI) scanning or radioiodine uptake determination during pregnancy (considered but not recommended)
4. Preferential use of propylthiouracil in the first trimester; methimazole in second trimester
5. Waiting until second trimester to perform thyroidectomy in rare cases when it is needed
6. Fetal surveillance with serial ultrasounds in women who have uncontrolled hyperthyroidism and/or women with high TRAb levels
7. Cordocentesis to determine fetal thyroid status in rare circumstances

Iodine Nutrition

1. Minimum intake of 250 μg iodine daily for pregnant and lactating women
2. Ensuring adequate iodine intake during preconception, pregnancy, and lactation
3. Avoiding excessive iodine intake

Spontaneous Pregnancy Loss, Preterm Delivery, and Thyroid Antibodies

1. Screening for antithyroid antibodies in the first trimester (considered but insufficient evidence for recommendation)
2. Treating TAb+ euthyroid women with LT_4 or intravenous immunoglobulin (IVIg) to prevent preterm delivery or pregnancy loss (considered but insufficient evidence for recommendation)

Thyroid Nodules and Thyroid Cancer

1. Risk stratification based on complete history and clinical examination, serum TSH testing, and ultrasound of the neck
2. Serum calcitonin measurement (considered but not recommended)
3. Fine needle aspiration of thyroid nodules
4. Timing of surgery (during pregnancy or deferring until postpartum)
5. Thyroid hormone therapy during pregnancy with monitoring of TSH levels
6. Ultrasound and thyroglobulin monitoring during pregnancy

Postpartum Thyroiditis

1. TSH, FT_4, and thyroid peroxidase antibody (TPOAb) testing in women with postpartum depression
2. Beta-blocker therapy during thyrotoxic phase if treatment indicated
3. Antithyroid drugs (considered but not recommended during thyrotoxic phase)
4. Monitoring of TSH levels
5. LT_4 treatment during hypothyroid phase

Thyroid Function Screening in Pregnancy

1. Universal screening for TSH at first trimester visit (considered but no recommendation made for or against)
2. Universal FT_4 screening of pregnant women (considered but not recommended)
3. Verbal screening at the initial prenatal visit for any history of thyroid dysfunction and/or use of thyroid hormone (LT_4) or anti-thyroid medications
4. Serum TSH testing early in pregnancy in women at high risk for overt hypothyroidism

Major Outcomes Considered

- Diagnostic utility of methods to assess thyroid disease during pregnancy
- Adverse pregnancy outcomes (e.g., preterm delivery, miscarriage, pregnancy-induced hypertension, abruption, low birth weight)

- Fetal complications (e.g., neurocognitive deficits)
- Neonatal or infant morbidity/mortality
- Postpartum thyroid dysfunction
- Perinatal mortality

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature review for each section included an analysis of all primary papers in the area published since 1990 and selective review of the primary literature published prior to 1990 that was seminal in the field. The guidelines committee used PubMed for their search of the literature.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Not stated

Rating Scheme for the Strength of the Evidence

Not applicable

Methods Used to Analyze the Evidence

Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The American Thyroid Association (ATA) charged a task force with developing clinical guidelines on the diagnosis and treatment of thyroid disease during pregnancy and the postpartum. The task force consisted of international experts in the field of thyroid disease and pregnancy, and included representatives from the ATA, Asia and Oceania Thyroid Association, Latin American Thyroid Society, American College of Obstetricians and Gynecologists, and the Midwives Alliance of North America. Inclusion of thyroidologists, obstetricians, and midwives on the task force was essential to ensuring widespread acceptance and adoption of the developed guidelines.

In the past 15 years there have been a number of recommendations and guideline statements relating to aspects of thyroid and pregnancy. In deriving the present guidelines the task force conducted a new and comprehensive analysis of the primary literature as the basis for all of the recommendations. The strength of each recommendation was graded according to the United States Preventive Services Task Force (USPSTF) Guidelines (see the "Rating Scheme for the Strength of the Recommendations").

It should be noted that although there was unanimity in the vast majority of recommendations there were two recommendations for which one of the committee members did not agree with the final recommendation. The two recommendations for which there were dissenting opinions are Recommendations 9 and 76. The alternative viewpoints are included in the body of the report.

Rating Scheme for the Strength of the Recommendations

The strength of each recommendation was graded according to the United States Preventive Services Task Force (USPSTF) guidelines outlined below.

Strength of Recommendation

Level A. The USPSTF strongly recommends that clinicians provide (the service) to eligible patients. *The USPSTF found good evidence that (the service) improves important health outcomes and concludes that benefits substantially outweigh harms*.

Level B. The USPSTF recommends that clinicians provide (this service) to eligible patients. The *USPSTF found at least fair evidence that (the service) improves important health outcomes and concludes that benefits outweigh harms*.

Level C. The USPSTF makes no recommendation for or against routine provision of (the service). *The USPSTF found at least fair evidence that (the service) can improve health outcomes but concludes that the balance of benefits and harms is too close to justify a general recommendation.*

Level D. The USPSTF recommends against routinely providing (the service) to asymptomatic patients. *The USPSTF found at least fair evidence that (the service) is ineffective or that harms outweigh benefits.*

Level I. The USPSTF concludes that evidence is insufficient to recommend for or against routinely providing (the service). *Evidence that (the service) is effective is lacking, or poor quality, or conflicting, and the balance of benefits and harms cannot be determined.*

Cost Analysis

Several published cost analyses were reviewed.

Universal screening for thyroid dysfunction in pregnancy has been found to be cost-effective in one study. However, this was based on the assumption that treatment of subclinically hypothyroid pregnant women would increase offspring IQ. Another cost-effectiveness study concluded that screening for subclinical hypothyroidism (SCH) in pregnancy would be cost-effective if future randomized controlled trials (RCTs) were to demonstrate that levothyroxine treatment of pregnant women with SCH decreased the incidence of offspring with an IQ of less than 85.

Recently (2009), a population-based study compared 201 pregnant women who underwent thyroid and parathyroid surgery during pregnancy with 31,155 similarly treated nonpregnant women. One hundred sixty-five operations were thyroid related and 46% of the women had thyroid cancer. Pregnant patients had a higher rate of endocrine and general complications, longer lengths of stay, and higher hospital costs. The fetal and maternal complication rates were 5.5% and 4.5%, respectively. Interpretation of the results of this study is difficult because there were substantial baseline differences between the two groups. Pregnant women were more likely to have either urgent or emergent admissions and had a higher percentage of government insurance. In situations in which surgery during pregnancy is indicated or desired, it should be performed in the second trimester in order to minimize complications to both the mother and fetus (altered organogenesis and spontaneous abortion in the first trimester; preterm labor and delivery in the third trimester). The risk of post-thyroidectomy maternal hypothyroidism and hypoparathyroidism should also be considered.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The final document was approved by the American Thyroid Association (ATA) Board of Directors and officially endorsed by the American Association of Clinical Endocrinologists (AACE), British Thyroid Association (BTA), Endocrine Society of Australia (ESA), European Association of Nuclear Medicine (EANM), European Thyroid Association (ETA), Italian Association of Clinical Endocrinologists (AME), Korean Thyroid Association (KTA), and Latin American Thyroid Society (LATS).

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is specifically stated for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate diagnosis and management of patients with thyroid disease during pregnancy and postpartum

Potential Harms

- Methimazole (MMI) may produce several congenital malformations.
- Risk of hepatotoxicity in patients exposed to propylthiouracil (PTU); an advisory committee recommended limiting the use of PTU to the first trimester of pregnancy.
- Hepatotoxicity may occur at any time during PTU treatment. Monitoring hepatic enzymes during administration of PTU should be considered. However, no data exist that have demonstrated that the monitoring of liver enzymes is effective in preventing fulminant PTU hepatotoxicity.
- Consideration should be given to discontinuing PTU after the first trimester and switching to MMI in order to decrease the incidence of liver disease.
- Poor control of thyrotoxicosis is associated with miscarriages, pregnancy-induced hypertension, prematurity, low birth weight, intrauterine growth restriction, stillbirth, thyroid storm, and maternal congestive heart failure.
- Infant toxicity: it is currently recommended that breast-feeding infants of mothers taking antithyroid drugs (ATDs) be screened with thyroid function tests and that the mothers take their antithyroid drugs in divided doses immediately following each feeding.

Contraindications

Contraindications

- Radioactive iodine (RAI) scanning or radioiodine uptake determination is contraindicated in pregnancy.
- Avoid ablation/radiation exposure to the fetus. Conception should be delayed for 6 months post-ablation to allow time for the dose of LT_4 to be adjusted to obtain target values for pregnancy.
- Pharmacologic doses of iodine exposure during pregnancy should be avoided, except in preparation for thyroid surgery for Graves' disease.
- The pentagastrin stimulation test is contraindicated in pregnancy.

Qualifying Statements

Qualifying Statements

Qualifying Statements

The committee recognizes that knowledge on the interplay between the thyroid gland and pregnancy/postpartum is dynamic, and new data will continue to come forth at a rapid rate. It is understood that the present guidelines are applicable only until future data refine the committee's understanding, define new areas of importance, and perhaps even refute some of the committee's recommendations. In the interim, it is the committee's hope that the present guidelines provide useful information to clinicians and help achieve the committee's ultimate goal of the highest quality clinical care for pregnant women and their unborn children.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

Foreign Language Translations

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Guideline Committee

The American Thyroid Association Task Force on Thyroid Disease During Pregnancy and Postpartum

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None of the members of the Guidelines task force had any conflicts of interest.

Guideline Endorser(s)

American Association of Clinical Endocrinologists - Medical Specialty Society

British Thyroid Association - Professional Association

Endocrine Society of Australia - Medical Specialty Society

European Association of Nuclear Medicine - Medical Specialty Society

European Thyroid Association - Disease Specific Society

Italian Association of Clinical Endocrinologists - Medical Specialty Society

Korean Thyroid Association - Disease Specific Society

Latin American Thyroid Society - Disease Specific Society

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) format from the American Thyroid Association Web site .

Print copies: Available from American Thyroid Association, 6066 Leesburg Pike, Suite 550, Falls Church, VA 22041.

Availability of Companion Documents

None available

Patient Resources

The following are available:

- Thyroid disease and pregnancy. Web brochure. Available in Portable Document Format (PDF) from the American Thyroid Association (ATA) Web site . Also available in Spanish from the ATA Web site .
- Postpartum thyroiditis. Web brochure. Available in PDF format from the ATA Web site .

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